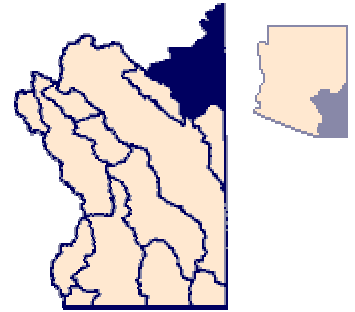


## **MORENCI BASIN**

The Morenci basin covers approximately 1,645 square miles of the Central Highlands physiographic province in eastern Arizona and is characterized by steep-walled canyons, mesas, buttes and peaks (Figure 17). The basin is bordered by the Arizona-New Mexico state line to the east and stretches from the fringes of the Colorado Plateau in the north to the Gila River in the south. Elevation ranges from over 10,900 feet above mean sea level on Escudilla Mountain to about 3,400 feet above mean sea level at the confluence of the San Francisco and Gila Rivers.



The Morenci basin, unlike most of the rest of the Central Highlands province, consists mainly of rhyolite and agglomerates capped by basalt flows. Much of the topography is dissected by streams and washes which flow mainly in response to rain and melting snow. A small percentage, possibly ranging from as little as 1 - 7% (Feth and Hem, 1963), of the precipitation falling on the area infiltrates the fractured basalt landscape and appears as spring flow. There are many springs in the basin, most of which discharge less than 100 gallons per minute. One spring, about 10 miles northeast of Clifton, discharges around 200 gallons per minute (Mann, 1980). Most springs issue from the contact between basalt flows or underlying silt and clay deposits. Insufficient data exists to determine whether a continuous groundwater system exists or if the area is made-up of several discontinuous systems. Alluvial and floodplain deposits along the San Francisco and Blue Rivers are probably hydraulically connected.

Groundwater development in the basin has been slight, with most wells tapping alluvial deposits along the major stream coarses. Approximately 8,800 acre-feet of groundwater were pumped in 1985 (Arizona Department of Water Resources, 1988). Mann (1980) reported depth to water in wells to be generally less than 30 feet below land surface. Most wells and springs also were reported to contain less than 500 milligrams per liter of dissolved solids and between zero and 0.9 milligrams per liter of fluoride; both of which are within drinking water standards. The amount of groundwater in storage is unknown but is believed to be relatively small because of the geologic characteristics of the basin.